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Magnetohydrodynamic (MHD) Jeffrey fluid over a stretching vertical surface in a porous medium (Article) (Open Access)

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Abstract

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This paper presents the study of steady two-dimensional mixed convection boundary layer flow and heat transfer of a Jeffrey fluid over a stretched sheet immersed in a porous medium in the presence of a transverse magnetic field. The governing partial differential equations are reduced to nonlinear ordinary differential equations with the aid of similarity transformation, which are then solved numerically using an implicit finite difference scheme. The effects of some of the embedded parameters, such as Deborah number β magnetic parameter M, mixed convection parameter λ porosity parameter γ and Prandtl number Pr, on the flow and heat transfer characteristics, are given in forms of tables and graphs. © 2017 National Laboratory for Aeronautics and Astronautics

Author keywords

Boundary layer | Jeffrey fluid | Magnetohydrodynamic (MHD) | Mixed convection | Porous media

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